5(4)

AUTHORS: Popov, V. I., Roginskiy, S. Z., Corresponding Member, AS USSR SOV/20-124-6-26/55

TITLE: The Kinetic Isotope Effect of the Oxidation of Hydrogen on Platinum (Kineticheskiy izotopnyy effekt okisleniya vodoroda na platine)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1275-1278 (USSR)

ABSTRACT: The present paper deals with the kinetic isotope effect mentioned in the title in the case of a large surplus of hydrogen. This reaction was chosen because of the lack of by-reactions, and also because this reaction can be investigated within a wide temperature interval (beginning from temperatures of less than 0° C). Besides, several earlier papers are available which deal with this subject. First, carrying out of the experiments and the apparatus used are described. The reaction occurred under dynamic conditions in a completely soldered glass apparatus, smooth platinum being used as catalyst. In this way complications connected with porosity were avoided. The kinetic isotope effect of hydrogen was measured at 95° and the results obtained by

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these experiments are given by a table. During the catalytic oxidation of hydrogen the water hereby produced is enriched with protium and for the separation coefficient α the value $\alpha = 1.31$ with $\Delta\alpha = \pm 3$ % was found. In the case of the irreversible reaction of a substance consisting of 2 nucleides, and if there is no distorting influence of an isotope exchange, the reaction may be imagined to be composed of 2 independent reactions. In the case under investigation (with a low content of deuterium in the hydrogen) this practically means that $H_2 + (1/2)O_2 = H_2O$, $HD + (1/2)O_2 = HDO$. Each of these two processes comprises the diffusion of hydrogen toward the surface and the following stages, which may begin with the adsorption of H_2 or also with its reactions in the case of an impact against the adsorbing oxygen. These processes may eventually end by the desorption of water and its diffusion from the surface layer into the current of gas. Similar considerations apply also to the control of the diffusion of water (formed in the case of an oxidation) from the surface

The Kinetic Isotope Effect of the Oxidation of Hydrogen on Platinum

SOV/20-124-6-26/55

layer of the catalyst into the gas current. A much more complicated problem is the control of the catalytic oxidation of hydrogen by chemical stages or by adsorption stages. There are 1 figure, 1 table, and 9 references, 4 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: December 2, 1958

Card 3/3

POPOV, V.I.; ROGINSKIY, S.Z.

Kinetic isotope effect and mechanism of hydrogen oxidation on platinum. Kin. i kat. 2 no.1:77-83 Ja-F '61. (MIRA 14:3)

1. Institut fizicheskoy khimii AN SSSR.
(Oxidation) (Deuterium) (Chemical reaction, Rate of)

33485
S/195/61/002/005/010/027
E071/E435

11.1220
11.1105

AUTHORS: Popov, V.I., Roginskiy, S.Z.

TITLE: Kinetic isotopic effect (KIEF) and the mechanism of oxidation of hydrogen on platinum

PERIODICAL: Kinetika i kataliz, v.2, no.5, 1961, 705-709

TEXT: In the authors' opinion, measurements of kinetic isotopic effects of catalytic reactions during isotopic exchange in one or more reacting components can provide information on the nature of the controlling stage of the process and the structure of the intermediate complex formed during this stage. For this reason they measured the kinetic effect of oxygen on the basis of the separation of a mixture of its isotopes during oxidation of hydrogen on smooth platinum. The reaction was carried out in the temperature range -78 to 400°C. As a catalyst, platinum wire of a geometrical surface area of 30 cm^2 was used; the mixture used was $H_2:O_2 = 1:1$ with an initial pressure of about 0.3 mm Hg. The isotopic composition of the starting and unreacted oxygen was determined with a mass spectrometer (relative accuracy ± 0.6%). From the isotopic composition, the concentration of O^{18} in oxygen of the water formed was calculated. The degree of isotopic

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Kinetic isotopic effect (KIEF) ...

separation was calculated from

$$S = \frac{(O^{16})_{\text{in water}}}{(O^{18})_{\text{in water}}} : \frac{(O^{16})_{\text{starting}}}{(O^{18})_{\text{starting}}}$$

Oxidation of the unreacted oxygen resulted in some enrichment with the O^{18} isotope. The value of the kinetic isotopic effect of oxygen changes steadily with increasing temperature of the reaction from 1.05 at -78 °C to 1.01 at 400 °C. From the plot of log S against (1/T) the difference in the energy of activation ΔE of the reactions with $O^{16}O^{18}$ and O_2^{16} was calculated (the presence of O_2^{18}, the concentration of which in the mixture of isotopic oxygen molecules is by one order below that of $O^{16}O^{18}$ was neglected) as 20 + 10 cal/mole. ΔE_o calculated for isolated $O^{16} - O^{16}$ and $O^{16} - O^{18}$ bonds equals 60 cal/mole. Comparison of the above two values leads to the conclusion that the oxygen isotopic effect could be due to the kinetic stage of the oxidation of hydrogen in which the formation of an intermediate complex takes place only with some weakening of the bonds between oxygen ...

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33485
S/195/61/002/005/010/027
E071/E435

Kinetic isotopic effect (KIEF) ...

compared to their original state and not their complete split. The authors express the view that the controlling stage in the oxidation of hydrogen is chemisorption of oxygen on activated platinum:

$$Pt^{*} + O_2 \rightarrow {}^{+}Pt^{*}(O_2^{-})$$

Acknowledgments are expressed to I.I.Tretyakov for his advice.
There are 1 figure, 1 table and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc. The reference to an English language publication reads as follows: Ref.2: L.C.S.Melander: Isotope Effects on Reaction Rate. Ronald Press, N.Y., 1960.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR
(Institute of Chemical Physics AS USSR)

Card 3/3

L 05057-67 EWT(m)/EWP(t)/ETI IJP(c) JD/HW/JR/GD

ACC NR: AT6027932 SOURCE CODE: UR/0000/66/000/000/0164/0169

AUTHOR: Abagyan, A. A.; Belov, S. P.; Kazanskiy, Yu. A.; Popov, V. I.; Fadeyev, I. A.; Dubinin, A. A.

ORG: None

TITLE: On the function of effectiveness of shielding materials with respect to capture gamma-radiation

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 164-169

TOPIC TAGS: radiation shielding, radiative capture, gamma radiation

ABSTRACT: The authors compare experimental and theoretical data on the function of effectiveness of shielding materials with respect to capture γ-radiation in nickel. The function of effectiveness is expressed as a linear combination of quantities of the type h_{Ap}

$$f(x) = h_{Ap} - \frac{\rho_B}{\rho_A} h_{Bp}$$

where ρ_A and ρ_B represent the concentrations of the respective components in the shield-

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L 05057-67
ACC NR: AT6027932

sity of capture γ-radiation behind the screen. An exception to this rule is the first 6 cm of nickel where the neutron hazard function for low energy particles is less than the function for high energy neutrons so that a good moderator placed at these points reduces the intensity of capture γ-quanta behind the screen. The authors thank V. V. Orlov, V. Ya. Pupko and S. G. Tsypin for interest in the work. Orig. art. has: 4 figures, 17 formulas.

SUB CODE: 18/ SUBM DATE: 12Jan66/ ORIG REF: 005

Card 3/3

L 10965-67
ACC NR: AT6036583

duced as a narrow beam on an accelerator. However, multicharge ions of these energies cannot be so reproduced. Thus the problem arises of modeling radiation effects applicable to concrete flight conditions.

Time parameters and the magnitude of the cosmic radiation effect are modeled using gamma rays. In this manner equality of depth distributions of the absorbed dose in irradiated objects is maintained. Specially developed gamma irradiators permit considerable variations in the level and time of acute irradiation (on a background of chronic irradiation) of groups of large laboratory animals. An OIYAI synchrocyclotron, creating a flux in a wide energy range down to 50 Mev, was used to model the radiation effect of solar flare protons. On long spaceflights the chief hazard will be multicharge ions of primary cosmic radiation. In order to model the radiation effect of these heavy charged particles, an apparatus was created which irradiates cell and tissue cultures, yeast, bacteria, etc. The biological objects were placed at the end of the particle path. It is possible that the radiation effect of heavy ions on large biological objects can be modeled with collimated microbeams of high-energy electrons. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

L 8554-66 EWT(1)/T IJP(c) GG

ACCESSION NR: AP5021179 UR/0139/65/000/004/0116/0118

44,55 44,55 53 55 B

AUTHOR: Buravikhin, V. A.; Popov, V. I.

TITLE: Investigation of the domain structure of ferromagnetic films with the aid of theEM-7 electron microscope

SOURCE: IVUZ. Fizika, no. 4, 1965, 116-118

21,44,55 21,44,55

TOPIC TAGS: magnetic domain structure, electron microscopy, ferromagnetic film, magnetic thin film, cobalt, nickel containing alloy, iron alloy/ EM-7

ABSTRACT: Experimental data on the domain structure of thin ferromagnetic films were obtained with the aid of the EM-7 electron microscope by using a defocused image and nonuniform illumination. The ferromagnetic films of cobalt and 25% iron and 75% nickel were obtained by evaporation in a vaccum of about 10^{-5} mm Hg on freshly cleaved NaCl crystals heated to 200C. The evaporation took place in a magnetic field of 100 oe directed along the surface of the films. The films were separated from the substrate by dissolving the latter in distilled water, the film thickness was measured optically. A device for reversing the magnetization was employed. The photographs of the change in the domain structure in the magnetic field were obtained outside the vacuum stystem. The method of nonuniform illumina-

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2

L 8554-66

ACCESSION NR: AP5021179

tion made possible a study of the magnetic structure at a magnification of 4000--5000. The method of the deformed image allows one to determine the direction of the magnetization of the domains at a magnification of 4000. Unlike the case of bulk Fe-Ni samples, the domain structure of the films did not change with an increase of the field up to 5 oe. Orig. art. has: 5 figures.

ASSOCIATION: Irkutskiy gospedinstitut (Irkutsk State Pedagogical Institute) 44,55

SUBMITTED: 14Jan64 ENCL: 00 SUB CODE: SS, EM

NR REF SOV: 003 OTHER: 005

jw

Card 2/2

POPOV, V.I.; KUSHAKBAYEV, S.M.

Results of the 22d session of the International Geological Congress in India. Uzb. geol. zhur. 9 no.3:90-93 '65. (MIRA 18:8)

1. Tashkentskiy gosudarstvennyy universitet im. V.I.Lenina i Institut geologii i geofiziki im. Kh.M.Abdullayeva AN UzSSR.

BURAVIKHIN, V.A.; KAZAKOV, V.G.; POPOV, V.I.

Effect of elastic stresses on the coercive force and shape of hysteresis loops in ferromagnetic films. Izv. AN SSSR. Ser. fiz. 29 no.4:659-662 Ap '65. (MIRA 18:5)

1. Irkutskiy gosudarstvennyy pedagogicheskiy institut.

POPOV, V.I.; REGINSKIY, S.Z.

Oxidation of hydorgen on platinum. Kin. i kat. 6 no.4:695-703 Jl-Ag '65. (MIRA 18:9)

1. Institut khimicheskoy fiziki AN SSSR.

L 13045-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/HW/GG

ACC NR: AP5018868 SOURCE CODE: UR/0126/65/020/001/0146/0149

AUTHOR: Buravikhin, V. A.; Popov, V. I.

ORG: Irkutsk Pedagogical Institute (Irkutskiy pedagogicheskiy institut)

TITLE: Magnetic properties and the structure of ferromagnetic films as functions of deposition substrate temperature

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 146-149

TOPIC TAGS: magnetic domain structure, ferromagnetic film, magnetic property, electron diffraction analysis

ABSTRACT: Magnetic properties and structure of thin ferromagnetic films of 83 Ni + 17 Fe evaporated at 10^{-5} mm Hg onto an NaCl single crystal substrate were investigated at varying temperatures. Domain and crystal structure, coercive force, and hysteresis loops in the films were shown to be functions of the substrate deposition temperature. Films were separated from the substrate by dissolving the latter in water. Films of 250 Å thickness (measured optically) were used for the study. Domain structure was observed with the EM-7 electron microscope using a shadow image. Hystereeis loops were oscillographed at a

UDC: 539.216.2 : 538.22

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L 13045-66
ACC NR: AP5018868

frequency of 1000 cps. Electron diffraction patterns, microstructures, hysteresis loops and domain structures are shown for films deposited on substrates at 20, 100, 200, 300 and 400°C. Domain structure was created by (1) magnetizing the film along the preferential axis of magnetization reducing the field to 0, and--after reversing the direction of magnetization--bringing the field back up to the point where the domain structure emerged, and (2) reducing the field to zero after magnetizing the film along the unfavored axis. In the second case the domain structure is due to anisotropy. Domain boundaries appeared in the form of light and dark lines. The electron microscope disclosed a fine magnetic structure which made it possible to determine the magnetization vectors within the domains. Electron diffraction patterns indicate that the crystal size within the film increases with substrate temperature rise. Hysteresis loops along preferential axis at 200-250°C show a minimum value of H_c for an H_c vs temperature plot, and a substantial lessening of fine structure is seen. Crystal dimensions at these conditions are not sufficiently large to cause local deviations in magnetization under the influence of anisotropy. Films deposited at temperatures above 250°C show a growth in internal stresses and subsequent increase in H_c and fine structure. Values of H_c are always greater in films--especially films formed on unheated substrates--than in bulk

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L 13045-66

ACC NR: AP5018868

specimens. It is proposed that fluctuations in the magnetization direction of vectors within the domains are responsible for the increasing H_c. Action of domain boundaries and the nature of fine structure during reversal of the applied field were studied. Reversal of magnetization in the film is found to be due to boundary displacement and the rotation of magnetization vectors of separate parts of domains unfavorably oriented relative to the applied field. Orig. art. has: 4 figures.

SUB CODE: 20,11/ SUBM DATE: 03Jul64/ ORIG REF: 002/ OTH REF: 008

Card 3/3

FUNKE, V.F.; YUDKOVSKIY, S.I.; Prinimali uchastiye: CHERENKOVA, V.A.; [illegible], V.I.

High temperature oxidation of alloys of zirconium boride with iron group metals. Zhur. fiz. khim. 38 no.5:1280-1283 My '64. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov. Submitted March 13, 1963.

SOV/112-59-3-5341

21(3)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 149 (USSR)

AUTHOR: Popov, V. I.

TITLE: Measuring Small Concentrations of Alpha-Active Substances in Water by a Diffusion Cloud Chamber (Izmereniye malykh kontsentratsiy α-aktivnykh veshchestv v vode s pomoshch'yu diffuzionnoy kamery Vil'sona)

PERIODICAL: V sb.: Issled. v obl. dozimetrii ioniziruyushchikh izlucheniy. M., AN SSSR, 1957, pp 154-161

ABSTRACT: A diffusion cloud chamber filled with ethyl or methyl alcohol vapor was used. A sample was placed on the bottom of the chamber cooled by dry ice, and the number of tracks was visually counted for a time of about 3 min. Experimental results showed that to measure accurately small concentrations of alpha-active substances in water, it is first necessary to evaporate the water to dry deposit. The upper limit of the measurement is 5×10^{-11} curie/liter; the lower limit is determined by the dilution of the samples. Measurement error is $\pm 10\%$.

L.V.M.

Card 1/1

P(PCV, V. I.

89-6-12/24

AUTHOR KOVALEV, Ye. Ye., POPOV, V.I., SMIRENNYY, L.N., KHOKHLOV, YU.S.

TITLE The Experimental Determination of the Emission of γ-Radiation from Extensive Sources. (Eksperimental'noye opredeleniye vykhoda γ-izlucheniya ot protyazhennykh istochnikov.- Russian)

PERIODICAL Atomnaya Energiya 1957, Vol 2, Nr 6, pp 553-555 (USSR)

ABSTRACT The manifold character of shapes, dimensions, and conditions of application of extensive radiation sources makes it necessary to carry out special experiments for each concrete case. The difficulty consists in the fact that the various factors determining the emission of γ-radiation from the extensive sources act simultaneously. The experimental determination of the dependence of the factors determining the emission of γ-radiation from the extensive sources can be no means be carried out on real extensive sources. A method which was suggested makes use of the model of an extensive source and permits a separate experimental investigation of the influence exercised by one or the other factor upon the emission of the γ rays.

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89-6-12/24

The Experimental Determination of the Emission of γ-Radiation from Extensive Sources.

This method can be applied to any linear or distributed sources. This is of particular interest in the case of such sources as represent rotational bodies or rotational figures. The authors at first investigate the modelling of an extensive source which has no self-absorption and multiple scattering. For a given extensive source a differential volume element is sought by the rotation round the axis of the source of which it is possible to reproduce the entire volume of the extensive source. By suitable selection of the volume element the influence of self-absorption and multiple scattering can be eliminated. The emission of γ radiation from such a rotating body is determined by purely geometric factors. The authors then discuss the application of this modelling method to some simple forms of sources. This modelling method can also be used for the investigation of the influence exercised by self-absorption and multiple scattering upon the emission of γ-radiation from an extensive body. Experiments concerning the evalution

CARD 2/3

POPOV, V.I.

AUTHOR: KOVALEV,E.E., POPOV,V.I., SMIRENNYY,L.N. PA - 2267

TITLE: The Radiation Field of a Rectangular Source (Pole izlucheniya pryamougol'nogo istochnika, Russian).

PERIODICAL: Atomnaia Energiia, 1957, Vol 2, Nr 2, pp 181 - 182 (U.S.S.R.)

Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The sources of rectangular shape have certain advantages in connection with the radiation of some objects for cold sterilizing etc. One of those advantages is the possibility of creating a steady radiation field, which is very important in some cases. The authors computed the radiation field of a rectangular source with any dimensions on the following conditions: 1) The radioactive substance is dispersed evenly over the whole field. 2) The sample has neither eigen-absorption nor eigen-scattering. Under such conditions it is easy to show that the dosage output of γ-radiation at the measuring point, which is caused by a source with the side-lengths a and b and the surface density σ of radio-activity, depends only on the relative dimensions $n = b/a$ and the relative distance $m = h/a$ from the assumed point. Without reducing the general character of the calculations the values of n can be restricted to the interval $0 < n \leq 1$, for the longer side of the rectangle can always be denoted with a. The results of these calculations are shown in a nomogram which is suited for practical use. Computations were carried out for $\sigma = 1$ mg-Äq.Ra/cm^2

Card 1/3

The Radiation Field of a Rectangular Source.

for the most frequently occuring relative distances ($0{,}01 \leq m \leq 5$) and relative dimensions ($0{,}025 \leq n \leq 1$).

When using the nomogram the dosage output P_A of the γ radiation of the rectangular source can be computed with any surface density σ according to a formula $P_A = \sigma \cdot P$ (h/a, b/a), where P(h/a, b/a) is taken from the nomogram. This formula permits the determination of the radiation field for the case that the projection of the measuring point is identical with one corner of the rectangle. In all other cases of a reciprocal arrangement of source and measuring point the radiation output of the γ-radiation can be computed as follows: A formula for P_A is given in case that the projection of the measuring point is within the source. All terms of this formula are taken from the nomogram and therefor the case under investigation can now be reduced to the preceding one. In a similar manner the dosage output at a measuring point the projection of which is outside the source may be found. Thus the here duscussed computations apply to any arrangement of the source with respect to the measuring point. With sources of non-uniform surface density σ the source has to be separated into part-rectangles with non-uniform . (2 illustrations).

Card 2/3

PA - 2267

The Radiation Field of a Rectangular Source.

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 1.8.1956
AVAILABLE: Library of Congress.

Card 3/3

POPOV V. I

KAPSAUROV, L.N.; MUSAYELYAN, R.M.; POPOV, V.I.

Total effective cross section of tritium for 2,5 and 14 Mev neutrons. (MIRA 11:2)
Atom. energ. Suppl. no.5:71-74 '57.
(Tritium) (Nuclear reactions) (Neutrons)

P/P/V

KATSAUROV, L.N.; MUSAYELYAN, R.M.; POPOV, V.I.

Total effective cross section of Li^6 and Li^7 for 2.5 and 14 Mev neutrons. Atom. energ. suppl. no.5:90-91 '57. (MIRA 11:2)
(Nuclear reactions) (Lithium--Isotopes)

POPOV, V. I.

89-12-3/29

AUTHOR: Popov, V. I.

TITLE: The Angular Distribution of Elastically and Inelastically Scattered 2.9 MeV Neutrons (Uglovoye raspredeleniye uprugo i neuprugo rasseyannykh neytronov s energiyey 2,9 Mev)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 12, pp. 498-506 (USSR)

ABSTRACT: The angular distribution and the scattering cross-section were measured by the aid of a ionization chamber filled with hydrogen and of a spheric geometry. The following results were communicated:

Elastical Scattering Cross-Sections $4\pi\sigma$ (b)barn; En=2,9 MeV

Element	30°	45°	60°	90°	105°
Fe	10,5±0,3	3,8±0,1	1,47± 0,04	0,79± 0,03	-
Cu	7,7±0,2	2,8 ± 0,1	0,81± 0,03	0,94± 0,03	1,15±0,02
Pb	27,4±0,5	5,8 ± 0,2	2,28± 0,06	2,71± 0,06	-
Bi	22,7±0,5	6,1 ± 0,2	2,70± 0,06	3,34± 0,07	-

Element	120°	150°
Fe	1,15 ± 0,04	1,38 ± 0,11

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89-12-3/29

The Angular Distribution of Elastically and Inelastically Scattered 2.9 MeV Neutrons.

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001342410009-7"

Cu	0,89 ± 0,03	0,43 ± 0,06
Pb	1,70 ± 0,06	3,2 ± 0,1
Bi	2,01 ± 0,06	3,3 ± 0,1

Inelastical Scattering Cross-Sections for Stimulated Levels (90°)

Element	Energy of the Level in MeV	$4\pi\sigma_{in}(90°)$b
Fe	0,85 ± 0,07	0,93 ± 0,05
Fe	1,54 ± 0,07	0,12 ± 0,03
Bi	0,90 ± 0,07	0,68 ± 0,04
Bi	1,56 ± 0,07	0,37 ± 0,04

Integral Cross-Sections (E_n = 2,9 MeV)

Element	σ_{el}	σ_{in} in barn	σ_{tr}
Fe	2,5 ± 0,1	0,90 ± 0,18	2,2 ± 0,2
Cu	1,88 ±0,1	1,40 ± 0,18	2,4 ± 0,2
Pb	5,9 ± 0,2	1,50 ± 0,25	4,5 ± 0,3
Bi	5,9 ± 0,2	1,60 ± 0,25	4,8 ± 0,3

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Card 3/3

Popov, V. I.

AUTHORS: Kovalev, Ye. Ye., Popov, V. I. 57-27-7-38/40

TITLE: Multiple Scattering Effect in Cylindrical Sources (K uchetu mnogokratnogo rasseyaniya v tsilindricheskikh istochnikakh).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1621-1627 (USSR)

ABSTRACT: In order to be able to take into account the self-scattering of the gamma-radiation in a cylindrical source, the so-called storage-factor B ($h\nu$, x, Z) has to be introduced for the self-absorption-factor in the expression of the equation standing below the integral. This factor takes into account the production of the scattering-radiation upon passage of the gamma-rays with an energy $h\nu$ of the substance-layer x with an atomic number Z. When they introduce B ($h\nu$, x, Z) they go over from the self-absorption-factor f_0 to the self-weakening-factor f which takes into account the self-absorption and the self-scattering of the gamma-radiation in the source. The equation for the self-weakening-factor is here derived under consideration of the multiple scattering. The method given here makes it possible

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Multiple Scattering Effect in Cylindrical Sources 57-27-7-38/40

to determine in a simple manner and without difficulties the influence of multiple scattering upon the gamma-ray-emission from extended sources. The determination of the self-weakening-factor is performed on the basis of existing data for the self-absorption.
There are 10 references, 3 of which are Soviet.

ASSOCIATION: Institute of Biophysics of the Academy of Medical Sciences USSR, Moscow (Institut biofiziki AMN SSSR, Moskva).

SUBMITTED: February 11, 1957

AVAILABLE: Library of Congress

1. Gamma rays-Scattering-Mathematical analysis

Card 2/2

POPOV, V. I., Cand Phys-Math Sci --,(diss) "Angular distribution of elastically and nonelastically dispersed neutrons with an energy of 2.9 Mev." Mos, 1958. 22 pp with drawings (Main Administration for the Use of Atomic Energy with the Council of Ministers USSR, Phys Inst). Bibliography at end of text (10 titles) (KL, 16-58, 116)

POPOV, V.I.; SMIRENNYY, L.N.; KOVALEV, Ye.Ye.

Integral dose absorbed by a cylindircal object from a hollow cylindrical emitter. Radiobiologiia 1 no.5:807-812 '61.
(MIRA 14:11)

(RADIATION--DOSAGE)

S/903/62/000/000/021/044
B102/B234

AUTHOR: Popov, V. I.

TITLE: Anomalous behavior of the Ca^{40} nucleus on inelastic scattering of 14-Mev neutrons

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 254-255

TEXT: The author used an experimental arrangement described in Atomnaya energiya, 3, 498, 1957 for measuring the scattered neutron energy spectra for Ca and Bi in the case of 50° scattering. A H_2+Ar filled spherical ionization chamber served as spectrometer. Whereas the scattered neutron spectra for Al, Fe, Cu, Pb or Bi may be well described by the relation $F(E) = CE\exp(-E/T)$ where T is the temperature of the final nucleus, F(E) for Ca shows a completely different course: in the same semi-logarithmic plot the F(E) curve has two maxima and two minima, the first at 1.5 Mev which cannot be explained by the common evaporation model. There is 1 figure.

Card 1/2

S/903/62/000/000/021/044
B102/B234

Anomalous behavior of the...

ASSOCIATION: Fiziko-energeticheskiy institut Gosudarstvennogo Komiteta Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii (Physics and Power Engineering Institute of the State Committee of the Council of Ministers of USSR on the Utilization of Atomic Energy)

Card 2/2

S/903/62/000/000/022/044
B102/B234

AUTHORS: Popov, V. I., Sal'nikov, O. A., Sluchevskaya, V. M.

TITLE: Scattered neutron spectra in the case of initial energies of 3 Mev

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 256-260

TEXT: The energy spectra of 3-Mev neutrons inelastically scattered from several metals used in reactor construction were measured in order to obtain information on the behavior of neutrons in core and shield. The measurements were made in annular geometry in the case of 60° scattering. An H_2+Ar filled ionization chamber served as detector; this and the experimental arrangement is described in Atomnaya energiya 3, 498, 1957. A deuteron-bombarded heavy-ice target served as neutron source; the pulses from the chamber were analyzed by means of a 128-channel pulse-height analyzer. Besides the spectra of neutrons scattered through 60° from Na, Si, Pb and Bi also the source spectrum was measured in the direction of the deuteron

Card 1/2

Scattered neutron spectra in the...

beam. The nuclear levels excited and the mean scattering cross sections were determined from the energy distributions measured (cf. Table). For Na in the range $2.45 \leq E_n \leq 4.00$ Mev also the excitation curve was constructed, under the assumption that inelastic scattering in this range is isotropic within error limits; σ_{in} drops linearly with increasing E_n. There are 5 figures and 1 table.

ASSOCIATION: Fiziko-energeticheskiy institut Gosudarstvennogo Komiteta Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii (Physics and Power Engineering Institute of the State Committee of the Council of Ministers of USSR on the Utilization of Atomic Energy)

Element	Nucl.level energy, Mev	σ, mb/srad
Na	0,46	40±4
Si	1,8	45±4
Pb	0,6—1,1	34±7
	1,5—2,0	51±5
Bi	0,9	44±7
	1,8	44±5

S/892/62/000/001/003/022
B102/B186

AUTHOR: Popov, V. I.

TITLE: Self-absorption of gamma radiation in extended sources

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Voprosy dosimetrii i zashchity ot izlucheniy, no. 1, 1962, 33-36

TEXT: The self-absorption factors $f(k,p,\mu R)$ are calculated with approximate formulas for cylindrical and spherical gamma-ray sources. The factors $f(p,\mu R)$ for a spherical source are tabulated for $1 \leq p \leq 10$ and $0 \leq \mu R \leq 10$, where p is the distance and R the radius. From the data obtained it is seen that the self-absorption factor varies only slowly with the distance from the source; for $p \geq 3$ it remains virtually constant. At distances $p > 3$ the dose rate varies $\sim 1/p^2$; when $p=3$ the deviation from this law is $\leq 2.5\%$ for $\mu R=0$ and $\sim 5\%$ for $\mu R=10$ (strong absorption). The transformation coefficients for the transition from a point source to a disc source or to a spherical source are calculated for $1 \leq p \leq 10$. They decrease exponentially with increasing p tending to zero with $p \to 10$. The results show that a

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45442
S/892/62/000/001/004/022
B102/B186

21.5250

AUTHOR: Popov, V. I.

TITLE: Experimental data on radiation from cylindrical sources

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Voprosy dozimetrii i zashchity ot izlucheniy, no. 1, 1962, 37-45

TEXT: The radiation distribution was measured for cylindrical sources consisting of stainless-steel containers 50, 100 and 175 cm in diameter and with 2 mm wall thickness, filled with aqueous solutions of $Co^{60}SO_4$ to a height of 100 cm. The sources were positioned 70 cm above the ground, and the gamma dose rate was measured with small ionization chambers (100 and 200 cm^3) with air-equivalent walls. The effects of radiation scattering in the air and from the ground were determined in shadow-shielding experiments with $(100\ cm)^2$-lead plates of 17.5 cm total thickness. The scattering correction factor was determined as $c=(P_2-P_1)/P_2$, where P_1 and P_2 are the dose rates (mr/sec) measured with and without shields. From the dose-rate distributions obtained it can

Card 1/3

Experimental data on radiation from ...

be seen that from a certain distance the dose rate variation satisfies the $1/p^2$-law, i.e. the extended source behaves as a point source. $p=b/R$ where b is the distance from the cylinder axis, and R the cylinder radius. With an error of 6% this distance is 1.2R for a cylinder with 2R=50 cm and h=100 cm, and 1.1 R (error 3.5%) for a cylinder with 2R=100 cm and h=100 cm. The results show that self-absorption and multiple scattering in the source have only negligible effects. The radiation attenuation in the source walls depends only slightly on R and virtually not on the distance covering 50 - 200 cm. The contribution of scattered radiation is proven to be less than 5% and remains within the limits of experimental error. The dose rate outside the source can be calculated with the formula $P = \frac{\gamma R B_1(k,p,\gamma R) P_\infty}{\pi}$ where P_∞ is the dose rate inside the source, the source being considered as infinite; B_1 is the radiation of a cylindrical source, and γ is the true γ-ray absorption coefficient. The curves P(1) calculated, where l=b-R, show that when only geometry is taken into account the dose rates obtained are much too high (for a cylinder with 2R=175 cm, by a factor of 4). When self-absorption is

Card 2/3

S/796/62/000/003/001/019

AUTHOR: Popov, V.I.

TITLE: Transformation from a point and other simplest forms of sources to a cylinder.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza izluchenly. no.3. 1962, 8-14.

TEXT: This theoretical study deals with the problem of determining the radiation dose received from a source of prescribed shape with reference to calculated or experimental data available for the dose received from a source having a different shape. Calculations made on the electronic computer "Strela" for the doses received at an arbitrary distance from a cylindrical source of finite dimensions are utilized to develop a transformation (T) from a point (P), line (L), or disk (D) to a cylinder (C) and to assess approximations in which a C is replaced by a P, L, or D. The T coefficient (C_T) is expressed in terms of the height-over-radius ratio of the C, the radial distance from the given point to the axis of the C or the axial distance from said point to the base of the C (both in terms of the C radius), and the self-absorption factor. The resulting expression indicates that in passing from a simple source to a cylindrical source, the radiation dose decreases by the amount of self-absorption of the C. Specific C_T's are developed for a radial direction: (1) point source at the geometric center of the C, reference point in the plane of the central section, or point source at the center of the C base, reference point in the base plane; (2) line

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source coincident with C axis in position and length, reference point in either the central plane or the base plane; and for an axial direction: (1) point source at the geometric center of the C; (2) disk source within the center plane normal to the C axis with disk radius (DR) = C radius (CR); (3) disk source at the upper base of the C, with DR=CR, a T equivalent to the T from a frustum of a cone without self-absorption to a C having the same height and a CR equal to the upper base radius of the frustum and a like specific activity; (4) a disk source at the base of the C, with DR=CR. Six nomograms for all of these C_T are provided. Specific numerical examples are discussed with reference to the errors incurred by assumed simple P, L, and D sources instead of the real C source. Use is made of the nomograms to determine that certain height on the C axis at which a disk source would have to be placed to produce the same dose at the reference point as the C. It is also found that a desired C source can be dimensioned so that the intensity of the dose received from it decreases with the square of the distance. E. g., a C source having a height 1.2x its diam acts like a P source in a radial direction on its central sectional plane. If the ratio is doubled, a P-like action of the C obtains along the base plane. If the height-to-diam ratio is 0.8, the C acts as a P in an axial direction. All of these numerical values depend on the value of the self-absorption. There are 6 figures and 4 references (2 Russian-language Soviet papers and 2 Russian translations of U.S. AEC publications, "Nuclear Reactors, vol.I - The physics of nuclear reactors" and "The shielding of nuclear reactors," Moscow. For. Lit. Publ. House, 1956).

 ASSOCIATION: None given.

KOVALEV, Ye. Ye.; POPOV, V. I.; SMIRENNYY, L. N.

Distribution of absorbed doses produced by a hollow cylindric irradiator. Radiobiologiia 2 no.3:502-507 '62.
(MIRA 15:7)

(RADIATION—DOSAGE) (GAMMA RAYS)

BAKOV, A.T.; BELOV, S.P.; KAZANSKIY, Yu.A.; POPOV, V.I.

Yield of γ-rays due to radiation capture from iron. Atom. energ. 13 no.1:31-37 Jl '62. (MIRA 15:7)
(Gamma rays) (Neutrons--Capture)

LARICHEV, A.V.; OSANOV, D.P.; POPOV, V.I.

Spectral composition of γ-radiation from homogeneous cylindrical sources. Atom. energ. 13 no.2:145-151 Ag '62. (MIRA 15:8)
(Gamma rays--Spectra)

45143
S/089/63/014/002/014/019
B188/B102

21 5207

AUTHOR: Popov, V. I.

TITLE: Mocking up extended gamma sources

PERIODICAL: Atomnaya energiya, v. 14, no. 2, 1963, 219 - 220

TEXT: Hitherto, the mock-up of extended gamma sources has been applied only to sources where neither self-absorption nor multiple scattering occur (Ye. Ye. Kovalev, Atomnaya energiya, II, no. 6, 553, 1957). Here this method is extended to determine the effect of self-absorption and multiple scattering on quantum yield. One sector of a cylinder having a vertex angle of 2.5° is filled with a solution containing Co^{60} and the rest is left empty or filled with water.. The gamma-dose rate is measured with an ionization chamber while the cylinder is rotating on its axis. The attenuation factor F is defined as the ratio of the gamma intensity measured when the remainder of the cylinder is filled with water to that measured when it is empty. It characterizes the effect of self-absorption and multiple scattering. F is measured as a function of l for various values of k, where k = h/R, and the results are compared with

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calculated values. l is the distance from the surface of the cylinder, h the height of the cylinder and R its radius. When k is large, F increases slowly and almost linearly; when k = 1, F is almost constant, and when k is small, F decreases with l. With h fixed, F increases as R decreases.

SUBMITTED: March 10, 1962

Card 2/2

S/056/63/044/001/001/067
B108/B180

24,6580

AUTHORS: Bakov, A. T., Belov, S. P., Kazanskiy, Yu. A., Popov, V. I.

TITLE: Comparison of the gamma spectra from the radiative capture of thermal and fast neutrons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 3 - 9

TEXT: The gamma spectra arising from the capture of fast and thermal neutrons from a water-moderated uranium reactor in Mn, Co, Fe, Ni, and Cu were studied by means of a scintillation gamma spectrometer with an NaI(Tl) single crystal. To eliminate the gamma background, the sample was shielded on the reactor side by a Bi-Pb-Bi sandwich screen, and the detector by a screen of organic glass and boron carbide. The spectra of all five substances were similar in shape (Fig. 4). The difference in the gamma intensities produced by fast and thermal neutrons is attributed to the effect of P-neutrons. There are 4 figures.

SUBMITTED: May 9, 1962

Card 1/2

ACC NR: AT6036599 SOURCE CODE: UR/0000/66/000/000/0234/0236

AUTHOR: Kudryashov, Ye. I.; Marennyy, A. M.; Popov, V. I.; Portman, A. I.; Solyanov, B. I.; Sychkov, M. A.

ORG: none

TITLE: A method of irradiating biological objects on a multicharge ion accelerator /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 234-236

TOPIC TAGS: ion accelerator, synchrocyclotron, ionizing radiation biologic effect, radiation tissue effect

ABSTRACT:

RBE values for heavy ions can be determined from experiments with irradiation of tissue and plant cultures. RBE determinations are necessary for calculations of the total dose received by cosmonaut and life-support system on a long spaceflight. At present the RBE values for heavy ions are set at 20—30, indicating the great radiation hazard presented by galactic rays.

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ACC NR: AT6036599

Experiments were conducted on the U-150 cyclotron at Dubna, which produces beams of accelerated carbon, nitrogen, and oxygen atoms with energies around 7 Mev per nucleon with currents up to 10 μamp. Irradiation of biological objects in these direct beams is impossible, since the dose power would be measured in megarads. In order to decrease the dose power to 2—5 rad/sec, the required level for irradiation of biological objects, a special device was used. The ion flux was decreased 10^6 times by the process of scattering heavy ions on gold foil (1—2 μ thick) fixed in a vacuum chamber. The angle between beams of primary and scattered ions reached 90°. This arrangement ensured convenience of operation and the necessary uniformity of the radiation field with respect to intensity and ion energy.

A special collimator (consisting of a system of concentric sleeves) was used to further equalize the radiation field. The collimator produces some decrease in the dose power received by the biological object, which can be compensated by increasing ion currents. Irradiation monitoring was accomplished with a special ion current integrator.

During ion scattering on gold foil secondary electrons are generated, which have a spectrum with a maximum in the region of 3 kev for a 60 Mev

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ACC NR: AT6036599

energy of the incident ion. A mylar film 5 μ thick which divided the vacuum part of the chamber from atmospheric air was used for electron absorption. Calculations showed that the contribution of secondary radiation to the total dose absorbed by the biological object did not exceed 1%.

Since the experimental biological objects were not more than 5—10 μ thick, their absorbed dose was calculated by ionization losses in polyethylene, a substance with braking ability similar to moist tissue.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06,20 / SUBM DATE: 00May66

Card 3/3

ACC NR: AT6036600 SOURCE CODE: UR/0000/66/000/000/0236/0237

AUTHOR: Kuzin, R. A.; Nevskaya, G. F.; Popov, V. I.; Sychkov, M. A.; Shafirkin, A.V. Yurgov, V. V.; Abramova, G. M.; Ginzburg, Ye. V.; Kalandarova, M. P.

ORG: none

TITLE: Experimental investigation of the effectiveness of local radioprotective shielding /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 236-237

TOPIC TAGS: radiation shielding, solar flare, cosmic radiation biologic effect, radiation protection, radiation dosimetry

ABSTRACT:

Many difficulties are encountered in selection of a radiation method suitable for study of the effect of local shielding. The radiation field within the limits of the irradiated object must not vary more than ±10%. The dose differential among absorbed doses must not exceed ±10%. Local shielding must produce at least a tenfold weakening of the dose. Furthermore, dose power must be sufficiently high to model solar flares, con-

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sidering the limited stay of the irradiated animal in a fixed position. Experimental calculations of the passage of protons through tissue have shown that high-energy protons scatter very little. For example, the average angle of multiple scattering for 660-Mev protons passing through a lead filter with a thickness of 100 g/cm^2 is approximately 2°.

Selection of proton energies was made using data on the distribution of absorbed doses created by monoenergetic protons with energies from 100—600 Mev in a water phantom. Since these distributions have a dose differential greater than 10% with shielding thicknesses up to 20 g/cm^2, it was decided to irradiate the animals from two sides. Maximum equalization of distribution with this method was obtained with 250-Mev protons. The local shield used was made of paraffin. A radiation field was produced at the irradiated object with a difference of ±20%. To obtain more uniform radiation, animals were placed asymmetrically to the axis of the proton beam and each side received half of the dose.

This method was perfected with a heterogeneous bone-paraffin phantom. Measurements made with this phantom showed a radiation field varying only 11% on the animals' surface. Furthermore, the differential of absorbed doses did not exceed 5%. When individual body parts were shielded, the

ACC NR: AT60 36600

dose decreased 10-15 times behind the shield. Thus the method described satisfies all the requirements listed above, and can be used in radiobiological study of the effectiveness of local shielding. [W. A. No. 22; ATD Report 66-116]

SUB CODE: 06, 18 / SUBM DATE: 00May66

Card 3/3

ACC NR: AP7000129 SOURCE CODE: UR/0115/66/000/011/0018/0019

AUTHOR: Keirim-Markus, I. B.; Kochetkov, O. A.; Moskalev, Yu. I.; Popov, V. I.

ORG: none

TITLE: Measurement units used in ionizing radiation dosimetry and radiation safety equipment

SOURCE: Izmeritel'naya tekhnika, no. 11, 1966, 18-19

TOPIC TAGS: ionizing radiation biologic effect, relative biologic efficiency, radiobiology, x ray radiation biologic effect, radiation shielding, radiation safety, radiation dosimetry

ABSTRACT: The authors criticize GOST 8848-63, adopted 1 July 1964, which established joules/kg and coulombs/kg as standard units for measurement of ionizing radiation absorbed dose and exposure, respectively. In so doing, this GOST standard ignored the decision of the ICRU (International Commission on Radiological Units) to recommend the use of the rad (=1 centijoule/kg) and roentgen (=0.257976 millicoulomb/kg), which are the units in which almost all presently used instrumentation is calibrated and almost all current research expressed. The cumbersome numerical data conversions required by use of the GOST units will afflict not only all studies involving absorbed doses expressed in rads and exposures in roentgens, but also all biological shielding calculations containing equivalent or effective dose units (ber, rem) based on rad and roentgen. Indeed, GOST 8848-63 provides no units whatever

Card 1/2 UDC: 577.391(017)

1. POPOV, V. I.

2. USSR (600)

4. Wheat

7. Susceptibility of spring wheat seed to fungus infection affecting viability, Sov. agron., 11, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

POPOV, Vladimir Ivanovich

[Achievement of the people; state farms on virgin lands] Podvig naroda (sovkhozy na tseline). Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 126 p. (MIRA 11:5)
(State farms) (Reclamation of land)

USSR/Cultivated Plants - Potatoes, Vegetables, Melons. M-3

POPOV, V I

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10822

Author : Popov, V.I.

Inst : VASKhNIL All-Union Academy of Agricultural Sciences imeni V.J. Lenin.

Title : Hardiness of White-Headed Cabbage Varieties to Vascular Bacteriosis.

Orig Pub : Dokl. VASKhNIL, 1957, No 5, 26-29

Abstract : In a production experiment on naturally infectious soil Varonezhskaya oblast' the following cabbage varieties were planted: Zavadovskaya, Savinskaya 42, Molokanka, Buzovka, Likurishka 498, Slava 231, and Braunshveygskaya 423. The Savinskaya, Zavadovskaya, and Likurishka 498 varieties displayed the greatest hardiness, the latter having only 0.01% of its plants infected

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Section on Plant Growing All Order of Lenin Agricultural Acad im V I Lenin

PANASENKO, Aleksandr Dmitriyevich, kand. tekhn. nauk; POPOV, V.I., red.

[Water pumps] Vodianye nasosy. Moskva, Izd-vo "Lesnaia promyshlennost'," 1964. 146 p. (MIRA 17:6)

POPOV, V.I. (Leningrad, ul. Gogolya, d.19, kv.7); KOKHAN, Ye.P.

Late results of surgical formation of a gastroesophageal anastomosis in cardiospasm. Grud. khir. 5 no.2:91-95 Mr-Ap'63 (MIRA 17:2)

1. Iz kafedry obshchey khirurgii (nachal'nik - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.

OTSTAVNOV, P.S.; LOVCHIKOVA, G.N.; POPOV, V.I.

Asymmetry of double scattering of neutrons on helium. Zhur. eksp. i teor. fiz. 45 no.6:1754-1758 D '63. (MIRA 17:2)

POPOV, V.I.; RESHETOV, A.I.

Presternal esophagoplasty using the stomach. Grudn. khir. 5 no.3:74-78 My-Je '63 (MIRA 17:1)

1. Iz kafedry khirurgii (nachal'nik - prof. V.I.Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova. Adres avtorov: Leningrad, Zagorodnyy pr., d. 47, Klinika obshchey khirurgii Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova.

POPOV, V.I. (g. Voronezh)

Vascular bacteriosis in cabbage. Zashch.rast.ot vred. i bol. 3 no.6:55 N-D '58. (MIRA 11:12)

(Cabbage--Diseases and pests)

POPOV, V.I.

Black rot and the resistance of white cabbage varieties to this disease in Voronezh Province. Trudy VIZR no.10:166-182 '58.
(MIRA 12:1)

(Voronezh Province--Cabbage--Diseases and pests)

POPOV, V. I.: Master Biol Sci (diss) -- "Vascular bacteriosis and the resistance to it of varieties of white cabbage under the conditions of Voronezh Oblast". Leningrad, 1959. 24 pp (All-Union Order of Lenin Acad Agric Sci im V. I. Lenin, All-Union Sci Res Inst of Plant Protection), 150 copies (KL, No 7, 1959, 123)

POPOV, Vladimir Ivanovich

[Achievement of the people] Podvig naroda. Izd.2., perer. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 140 p. (MIRA 13:8)
(State farms)

POPOV, V.I.

S.F. Negovelov's soil sampler. Pochvovedenie no.1:106 Ja '60. (MIRA 13:5)
(Soils--Analysis)

POPOV, V.I.

Estimating wheat stem rust. Zashch. rast. ot vred. i bol. 5 no.9:44-45 S '60. (MIRA 15:6)

(Wheat--Rusts)

POPOV, Vladimir Ivanovich; IL'INA, I., red.; KLIMOVA, T., tekhn. red.

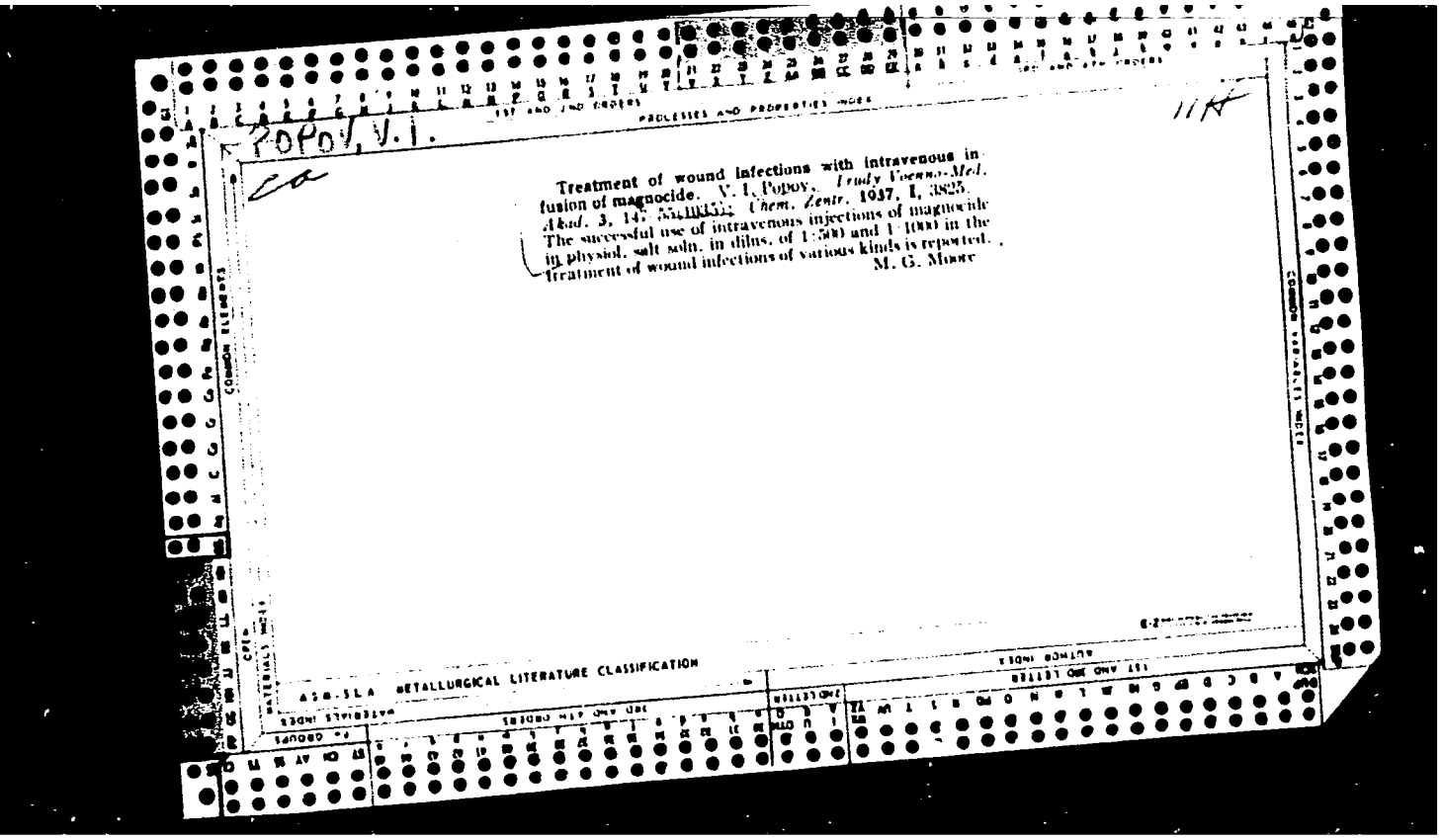
[Plenary session of the Central Committee of the CPSU in December 1958] Dekabr'skii Plenum TSentral'nogo Komiteta KPSS 1958 goda. Moskva, Gos. izd-vo polit. lit-ry, 1961. 86 p. (MIRA 14:10)

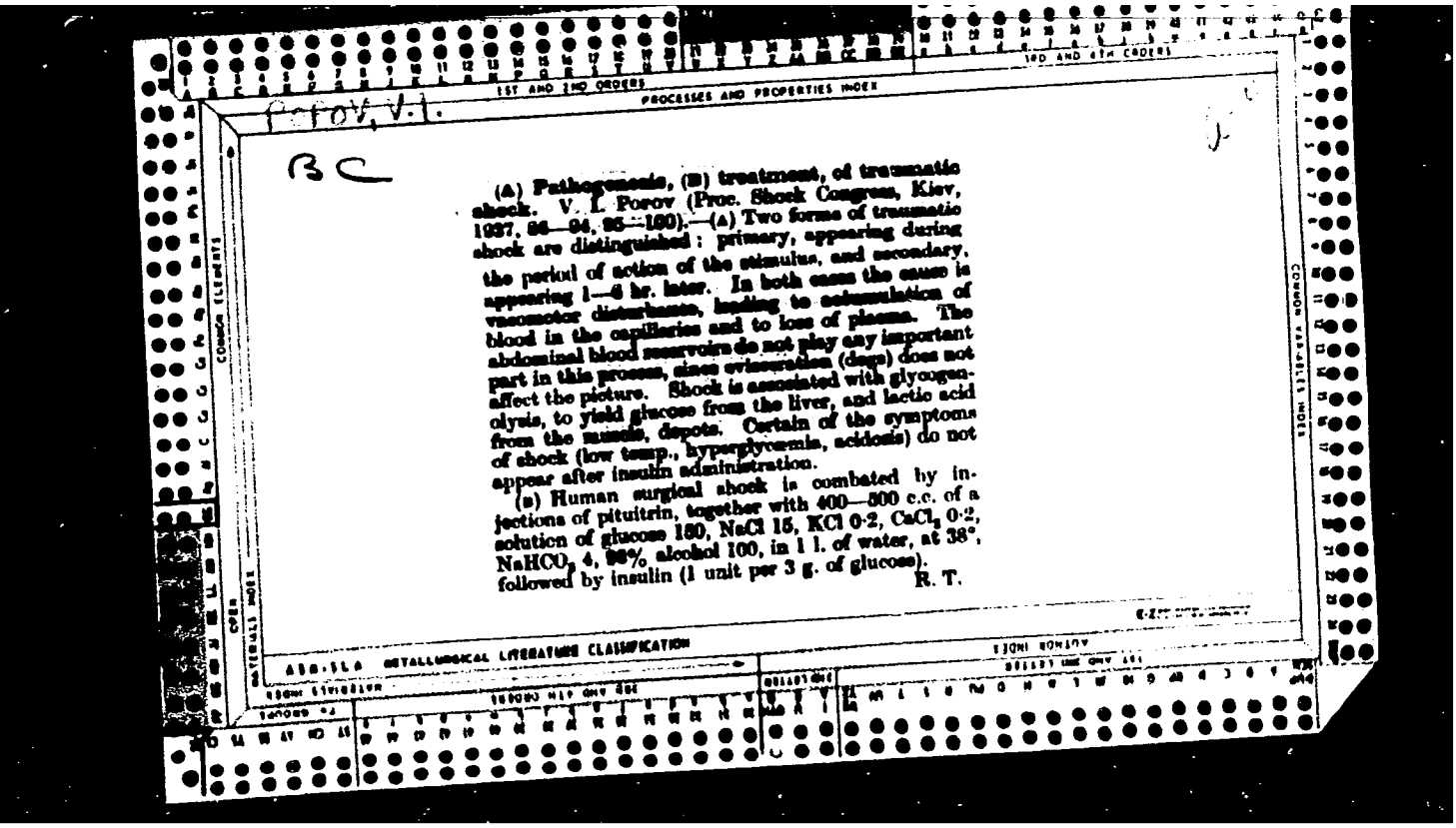
(Agriculture)

POLYAKOV, I.M.; VLADIMIRSKAYA, M.Ye.; POPOV, V.I.

Soil fumigant mylone. Zashch. rast. ot vred. i bol. 8 no.2:29-30 F '63. (MIRA 16:7)

1. Vsesoyuznyy institut zashchity rasteniy.
(Fumigation) (Thiadiazinethione)





Porov, V. I.

BC

(A) Pathogenesis, (B) treatment, of traumatic shock. V. I. Porov (Proc. Shock Congress, Kiev, 1937, 86—94, 95—100).—(A) Two forms of traumatic shock are distinguished: primary, appearing during the period of action of the stimulus, and secondary, appearing 1—6 hr. later. In both cases the cause is vasomotor disturbance, leading to accumulation of blood in the capillaries and to loss of plasma. The abdominal blood reservoirs do not play any important part in this process, since evisceration (dogs) does not affect the picture. Shock is associated with glycogenolysis, to yield glucose from the liver, and lactic acid from the muscle depots. Certain of the symptoms of shock (low temp., hyperglycæmia, acidosis) do not appear after insulin administration.

(B) Human surgical shock is combated by injections of pituitrin, together with 400—500 c.c. of a solution of glucose 180, NaCl 15, KCl 0·2, $CaCl_2$ 0·2, $NaHCO_3$ 4, 96% alcohol 100, in 1 l. of water, at 38°, followed by insulin (1 unit per 3 g. of glucose).

R. T.

POPOV, V.I., professor, general-mayor meditsinskoy sluzhby, redaktor; CHERNAKOV, B.M., kandidat meditsinskikh nauk, polkovnik meditsinskoy sluzhby.

[Experience of Soviet medicine in the Great Patriotic War, 1941-1945] Opyt sovetskoi meditsiny v velikoi otechestvennoi voine, 1941-1945 gg. Moskva, Medgiz. Vol. 14. 1952. 351 p. (MLRA 6:12)

(Surgery, Military) (Wounds--Treatment) (Gunshot wounds)

Popov, V.I.

AUDRIETH, Ludwig Frederick; OGG, Betty Ackerson; YAKOVLEVA, Ye.A.[translator]; VARSHAVSKIY, Ya.M., redaktor; SARATOVA, , M.V., redaktor; POPOV, V.I., redaktor GERASIMOVA, Ye.S., tekhnicheskiy redaktor

[The chemistry of hydrazine. Translation from the English] Khimiia gidrazina. Perevod s angliiskogo E.A.IAkovlevoi. Pod red. IA.M. Varshavskogo. Moskva, Izd-vo inostrannoi lit-ry, 1954. 237 p.
(Hydrazine) (MIRA 8:4)

POPOV, V.I., general-mayor meditsinskoy sluzhby, professor; FILIN, V.I.

Methodology of using antibiotics in acute dispersed purulent peritonitis. Voen.-med.zhur. no.10:18-25 O '55.
(ANTIBIOTICS) (MLRA 9:10)
(PERITONITIS)

POPOV, V.I.professor; D'YACHENKO, P.K.,kandidat meditsinskikh nauk; SHAMIN, Yu.N.

First experience and prospects for the use of hypothermia in surgery. Vest. khir. 76 no.11:11-22 '55 (MLRA 9:4)

1. Iz kliniki obshchey khirurgii (nach.-prof. V.I. Popov) i kafedry farmakologii (nach.-prof. S.Ya. Arbuzov)Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

(BODY TEMPERATURE
hypothermia, induced, in surg., methods & evaluation)
(SURGERY, OPERATIVE,
hypothermia in, methods & evaluation)

BIBLIOGRAFIA MEDICA Sec.9 Vol.11/4 Surgery April 57

1950. POPOV V.I. and FILIN V.I. *The treatment of acute diffuse peritonitis (Russian text) VESTN.KHIR. 1956, 1 (17-26) Tables 5

The best method of anaesthesia is an endotracheal ether-oxygen narcosis. The vago-sympathetic cervical blockade (Višnévski) combined with the use of solutions (glucose, alcohol, sodium chloride and sodium bicarbonate) administered i.v. are recommended against shock. A combination of penicillin and streptomycin proved to be the best means against infection. The authors recommend permanent instillation of a solution of these antibiotics into the peritoneal cavity by means of several rubber drains. The authors expect much from this method also in the treatment of gun-shot wounds penetrating the abdomen in war. Adámek - Náchod

Clinic of general surgery
Mil Med Acad in S. M. Kirov

920. THE USE OF HYPOTHERMIA IN SURGERY (Russian text) - Popov V. I. and Dyachenko P. K. - VOEN.-MED. ZH. 1957, 1 (38-50)

Three types of hypothermia are distinguished: (1) light, with cooling to + 31°; (2) moderate, to + 26°, and (3) deep, to + 22°. Each type has its own clinical features and indications. Deep hypothermia requires great skill on the part of the anaesthetist and incessant watch over the patient; it is indicated only in the surgical treatment of heart disease, particularly when exclusion of the heart from the circulation is required. The use of hypothermia of the light and moderate types is simpler and is indicated, for example, in extensive single-stage plastic and reconstructive operations on the oesophagus and other organs of the gastro-intestinal tract, in operations of great technical difficulty and in severe cases as an emergency method of dealing with shock. Complications and dangers of hypothermia may be classified into 2 groups: (1) those resulting from technical errors; (2) those dependent on the condition of the patient, such as cardiac arrhythmias, fibrillation and asystole, depression of respiration, disturbances of hepatic and renal function etc. Complications of this sort may be foreseen and prevented. (S)

POPOV, V.I., professor

"Clinical aspects and prevention of retroperitoneal and pelvic phlegmon in patients with abdominal wounds" by A.V.Mel'nikov. Reviewed by V.I.Popov. Vest.khir. 78 no.3:141-142 Mr '57. (MLRA 10:6)
(ABDOMEN--WOUNDS AND INJURIES)
(CONNECTIVE TISSUES--DISEASES)
(MEL'NIKOV, A.V.)

POPOV, V.I., professor (Leningrad, ul. Gogolya, d.19, kv. 7)

Formation of an artificial esophagus from the colon [with summary in English, p.157] Vest.khir. 78 no.6:15-23 Je '57. (MIRA 10:8)

1. Iz kliniki obshchey khirurgii (nach. - prof. V.I.Popov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova.
(ESOPHAGUS, surg.
transpl. of colon segment for replacement of esophagus)
(COLON, transpl.
replacement of esophagus by segment of colon)

POPOV, V.I., prof.; ALEKSEYEV, P.P., kand.med.nauk

Clinical data on the results of the treatment of thrombophlebitis [with summary in English]. Vest.khir. 79 no.11:23-31 N '57. (MIRA 11:3)

1. Iz kafedry obshchey khirurgii (nach.-prof. V.I.Popov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova.
Adres avtorov: Leningrad, ul. Lebedeva, d.8, klinika obshchey khirurgii.

(THROMBOPHLEBITIS, ther.
penicillin with procaine, intra-arterial admin. (Rus)
(PENICILLIN, ther. use
thrombophlebitis, with procaine, intra-arterial admin. (Rus)
(PROCAINE, ther. use
thrombophlebitis, with penicillin, intra-arterial admin. (Rus)

POPOV, V.I., prof., ALEKSEYEV, P.P., kand.med.nauk (Leningrad)

Methods for determining and classifying collateral blood circulation in obliterating endarteritis. Klin.med. 36 no.11:90-95 '58 (MIRA 11:12)

1. Iz kliniki obshchey khirurgii (nach. kafedry - prof. V.I. Popov) Voyenno-, editsinskoy ordena Lenina akademii imeni S.M. Kirova.

(ARTERIOSCLEROSIS, OBLITERANS, physiol.
collateral blood circ., method of determ. & classif. (Rus))

POPOV, V.I., prof. (Leningrad, ul. Gogolya, d. 19 kv. 7).,KAZANSKIY, A.A.,dots.

V.A. Oppel's theories on the treatment of war wounds at different evacuation stages. Vest.khir. 81 no.9:50-56 S'58 (MIRA 11:11)

1. Iz kafedry obshchey khirurgii (nach. - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(WOUNDS AND INJURIES,
war wds., ther. (Rus))

POPOV, V.I., prof. (Leningrad, ul. Gogolya, d. 19, kv.7), YERKOV, V.P.

Skin homotransplanation [with summary in English]. Vest.khir. 81 no.10:31-38 O '58 (MIRA 11:11)

1. Iz kliniki obshchey khirurgii No.1 (nach - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademi S.M. Kirova.
(SKIN TRANSPLANTATION
homografts preserved by cold in rabbits & humans (Rus))

POPOV, V.I., prof.; FILIN, V.I., kand.med.nauk

Use of the large intestine as a replacement for the stomach.
Nov.khir.arkh. no.4:62-67 Jl-Ag '59. (MIRA 12:11)

1. Kafedra obshchey khirurgii (nachal'nik - prof.V.I.Popov)
Voyenno-meditsinskoy akademii im. S.M.Kirova.
(ALIMENTARY CANAL--SURGERY)

POPOV, V.I., prof. (Leningrad); FILIN, V.I., kand.med.nauk (Leningrad)

Clinical data on the etiology and pathogenesis of edema, atelectasis, and inflammation of the lungs following intrathoracic surgery. Klin.med. 37 no.8:49-56 Ag '59. (MIRA 12:11)

1. Iz kafedry obshchey khirurgii (nach. - prof.V.I.Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(THORAX, surgery)
(PULMONARY EDEMA, etiology)
(ATELECTASIS, etiology)
(PNEUMONIA, etiology)

POPOV, V. I., (Prof.) -- Leningrad

"Reconstruction of the Esophagus in Cases of Stricture."

Report submitted for the 27th Congress of Surgeons of the USSR, MOSCOW, 23-28 May 1960.

POPOV, V.I., general-mayor meditsinskoy sluzhby, prof.; FILIN, V.I., podpolkovnik meditsinskoy sluzhby, kand.med.nauk

Edema, atelectasis, and inflammation of the lungs after intrathoracic surgery. Voen.-med.zhur. no.4:13-20 Ap '60. (MIRA 14:1)
(CHEST—SURGERY) (PULMONARY EDEMA)
(LUNGS—COLLAPSE) (PNEUMONIA)

27.1220

25250 S/177/60/000/007/005/011
D264/D304

AUTHOR: Popov, V.I., Professor, Major General, Medical Corps, Razumeyev, A.N. and Ryazhkin, G.A.

TITLE: Changes in the functional state of certain sections of the cerebrum with shock in intact and irradiated animals

PERIODICAL: Voyenno-meditsinskiy zhurnal, no. 7, 1960, 32-35

TEXT: To determine the focus of inhibition and to check the effects of irradiation on sensitivity to pain, an electroencephalographic study was made of the functional state of the cerebral cortex and certain subcortical formations in intact and irradiated rabbits under shock. The test rabbits were exposed for 25 minutes to a radiation source with an intensity of 20 r/min, i.e. a total dose of 500 r. An analysis of the results is given, broken down into the latent period, height and recuperative period of radiation sickness. It was found that in both the intact and the irradiated animals the focus of inhibition in shock develops, not in the cor-

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POPOV, V.I., prof. (Leningrad, ul. Gogolya, d.19, kv.7); SEMENOV, N.K.

Pathogenesis and treatment of tetanus. Vest.khir. 85 no.12: 32-39 D '60. (MIRA 14:1)

1. Iz kliniki obshchey khirurgii (nach. - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(TETANUS)

POPOV, V. I.; FILIN, V. I.

Esophagoplasty in lesions of the cervical and upper thoracic segments of the esophagus. Grud. khir. no.4:85-91 '61. (MIRA 14:12)

1. Iz kliniki obshchey khirurgii (nach. - prof. V. I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S. M. Kirova.

(ESOPHAGUS—DISEASES) (ESOPHAGUS—SURGERY)

POPOV, V.I., prof., general-mayor meditsinskoy sluzhby; RAZUMEYEV, A.N.; RYAZHKIN, G.A., podpolkovnik meditsinskoy sluzhby; SLASTIKHIN, M.A., mayor meditsinskoy sluzhby

Some problems in the pathogenesis of traumatic and anaphylactic shock. Voen.-med. zhur. no.7:25-27 Jl '61. (MIRA 15:1)
(ALLERGY) (SHOCK) (BRAIN)

POPOV, V.I., professor; FILIN, V.I., kand.med.nauk

Free transplantation of the intestine in reconstructions of the esophagus. Vest.khir. no.9:3-9 '61. (MIRA 15:[illegible])

1. Iz kliniki obshchey khirurgii (nach. - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(ESOPHAGUS--SURGERY) (INTESTINES--TRANSPLANTATION)

POPOV, V.I., professor; RAZUMEYEV, A.N.; RYAZHKIN, G.A.

Pathogenesis and treatment of shock. Vest.khir. 86 no.2:25-32 '61. (MIRA 14:2)

1. Iz kliniki obshchey khirurgii (nach. - prof. V.I. Popov) i kafedry farmakologii i farmatsii (zav. - prof. N.V. Lazarev) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(SHOCK)

POPOV, V.I., prof.; FILIN, V.I., kand.med.nauk

Complications and causes of a fatal outcome following surgery and diseases of the cardia and esophagus. Vest.khir. 86 no.3:105-111 Mr '61. (MIRA 14:3)

1. Iz kliniki obshchey khirurgii (nach. - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(STOMACH--SURGERY) (ESOPHAGUS--SURGERY)

POPOV, V.I., prof.; FILIN, V.I., kand.med.nauk

Two variations of enteroplasty of the cervical segment of the esophagus. Kaz. med. zhur. no.2:38-41 Mr-Ap '62. (MIRA 15:6)

1. Klinika obshchey khirurgii (nachal'nik - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(ESOPHAGUS--SURGERY)
(INTESTINES--TRANSPLANTATION)

POPOV. V.I., prof.; RESHETOV, A.O., kand.med.nauk.;FILIN, V.I.

Lengthening the stomach by a resection of the lesser curvature in prethoracic plastic surgery of the esophagus for cancer. Khirurgiia no.3:9-13 '63. (MIRA 16:5)

1. Iz kliniki obshchey khirurgii (nachal'nik - prof. V.I.Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(STOMACH--TRANSPLANTATION) (ESOPHAGUS--CANCER)
(ESOPHAGUS--SURGERY)

POPOV, V.I., prof. (Leningrad, ul. Gogolya, d.19, kv.7); MURTAZAYEV, N.D.

Basis of the methodology of the sacrospinal block. Vest. Khir. 91 no.10:84-92 O '63. (MIRA 17:7)

1. Iz kafedry obshchey khirurgii (nachal'nik - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova.

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ACC NR: AP6013928 (N) SOURCE CODE: UR/0207/66/000/002/0100/0103

AUTHOR: Kostylev, Yu. V. (Novosibirsk); Popov, V. I. (Novosibirsk); Khabakhpasheva, Ye. M. (Novosibirsk)

ORG: none

59
B

TITLE: Velocity profiles for laminar flow of structurally viscous fluids between parallel planes

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 100-103

TOPIC TAGS: laminar flow, flow profile, viscous fluid, plane flow, shear stress, flow velocity

ABSTRACT: The authors compare theoretical and experimental velocity profiles for structurally viscous fluids. It is shown that the velocity profile is independent of the tangential shear stress on the wall for stabilized flow in a flat channel. The experimental installation was made up of a closed system with a constant-level tank. The measurements were made in a rectangular transparent channel. The instrument used for measuring the velocity profile is briefly described. Experimental curves are given showing the viscosity as a function of tangential shear stresses at the wall for aqueous solutions of polyvinyl alcohol and carboxymethylcellulose. It was found that the viscosity curve is approximated satisfactorily by the theoretical formula below a certain value for the tangential stress at the wall. The experimental results seem

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ACC NR: AP6013928

to confirm the validity of a formula for the flow velocity based on a linear viscosity law within a range of shear stresses which is of practical interest. Orig. art. has: 5 figures, 7 formulas.

SUB CODE: 20/ SUBM DATE: 14Jul65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

DESHEVOY, Boris Mikhaylovich, dots.; POPOV, Viktor Ivanovich, dots.

[Textbook on theoretical mechanics for the second year students of the Leningrad Technological Institute; dynamics] Uchebnoe posobie po teoreticheskoi mekhanike dlia studentov II kursa LTI im. Lensoveta: Dinamika. Leningrad, Leningr. tekhnologicheskii in-t. Pt.1. 1961. 173 p. Pt.2. 1962. 146 p. (MIRA 17:3)

POPOV, V.I.; KOZLOV, A.S.; KLOPOV, V.I.; SOKOLOV, N.N.

Modernization of the RMO-1600 chopping machine. Der. prom. 14 no.10:15-17 O '65. (MIRA 18:12)

1. Permskiy lesokombinat "Krasnyy Oktyabr'".